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Original

ISOLATION IN SCARLET FEVER UNNECESSARY AND INEXPEDIENT.

BY ARTHUR WIGLESWORTH, L. R. C. P. LOND., M. R. C. S. ENG., L. S. A.

I have on several occasions called your attention to the great value of carbolic acid in the treatment of scarlet fever, for in my hands it has proved a specific for that hitherto much dreaded zymotic disease. Without troubling you again with details I may summarize the results by stating that if I saw my patients in the initial stage of the disease they all recovered; that I have had only three cases of albuminuria, all transient in duration; only one of glandular suppuration; and all other usual sequele have been characteristically absent. Finally, all the patients have recovered in a remarkably short space of time and with but little enfeeblement of strength. This treatment consists in administering to all patients, so soon as scarlet fever is suspected or diagnosed, from one to six grains of carbolic acid (according to age) freely diluted with water and continuing it every two hours until the rash has finally disappeared and then reducing the dose and frequency of administration until convalescence has been fully established. This practice I have pursued for over 16 years and each succeeding year confirms my opinion of its inestimable value.

The subject of this paper has, however, only recently forced itself upon my attention, and was chiefly due to a perusal of Flugge's work on micro-organisms, which has given me a scientific basis to work upon. It is to this scientific basis, founded upon pathological experiments, as described in that work, that I desire to call attention. I may premise that it was not till some years after I com-

menced the use of carbolic acid that I was led to adopt my present views and prepared for this latest development. The first stage was to administer carbolic acid as a possible prophylactic; and it arose in this way. Two children in a family were attacked with scarlet fever, and it was found quite impossible to isolate them from the rest of the children—three in number—because there were only an elder sister and the mother to attend to the wants of the entire household. I put this sister and the other two upon two-grain doses of carbolic acid administered twice a day, and the freest communication existed between the inmates of the sick chamber and the rest of the household. The result was eminently satisfactory; none of the rest took the infection, though about three years afterwards they were attacked, showing that there was a susceptibility to the zymotic poison.

With the experience thus gained I decided to pursue this line of prophylactic treatment in all subsequent cases, giving carbolic acid to those not infected, and then allowing the freest communication between the attendants in the sick room and the other inmates of the household; but not allowing uninfected children to enter the sick chamber. The results of this treatment were remarkably striking. I found that most of the household escaped infection altogether, but they not infrequently had an attack in after years. That those who did take scarlet fever invariably—there is not a single exception—took the infection in a milder form, and in only one instance did a sequela occur; finally, that after disinfection no other cases ever arose unless imported from a fresh source I concluded, therefore, that there was some special effect produced upon the unknown micro-organism of scarlet fever which rendered it much less virulent, and this view seemed to me to receive a measure of support from the fact that whenever a patient had taken a certain quantity of carbolic acid a peculiarly dark color of the urine appeared (which I now look upon as indicative of "carbolization" having been effected), and that when this was produced the urine would remain free from the usual putrefactive changes from a week to a month, and if it occurred ultimately the usually highly offensive ammoniacal odor of putrid urine was almost absent. It was not, however, until I had read Flugge's work that many points which I did not understand were made clear to my mind, and thenceforward I entered upon a new course—namely, that of abandoning isolation—hitherto with highly successful results. My plan, therefore, is to first carbolize my patient with doses according to age, and at the same time to put all the uninfected members of the household on carbolic acid, and when the characteristic hue has become manifested in the urine of the patient to introduce into the sick chamber the other children, allowing them free access to the invalid until desquamation is completed and the house disinfected. Before, however, giving details of cases in support of this unusual procedure I must give the following few extracts from Flugge's work concerning bacterial attenuation, which determined me to pursue my present course. "The loss of the fermentative or pathogenic properties (in micro-organisms) is shortly termed the 'attenuation of the bacterium.'" "The vital phenomena which are in this way lost (as far as has yet been ascertained) are only the power of producing fermentation and that of exciting disease." "The smallest degree of injury which micro-organisms can experience as a result of external influences consists in the disturbance of their complete development." "Minute departures from the normal conditions of existence often lead to a cessation of some one biological function. Thus by alterations we may have cessations of the swarming power, of the secretion of peptonizing ferments of the fermentative action, etc., whilst growth multiplication and all other vital phenomena remain unaltered." "Their power in producing disease also may be influenced by similar trivial alterations in the conditions of life, and may be even temporarily removed...for example, by small doses of specific poisons we

might be able to neutralize the superiority of the pathogenic bacteria over the cells of the animal body." "By noxious influences of definite intensity we may so alter many bacteria that they lose certain of their vital functions." "The noxious factors which are suitable for this action are less energetic than those which cause complete death of the bacteria; on the other hand, the effects are more marked than in the case of inhibitory means, which only exert their influence so long as they are present in the nutrient substratum." "At times, however, the greater effect necessary for attenuation can be produced by sufficiently long-continued action of the milder means." "When properly regulated various chemical poisons are able to produce a permanent attenuation." Pasteur, writing on "The Attenuation of Bacteria" by chemical means, says: "Each cultivation of the attenuated bacterium is a vaccine for the more virulent—that is to say, a virus capable of producing a more benign malady." "The bacteria attenuated by antiseptics, whether they give rise to spores or not, preserved their diminished virulence through repeated cultivations." "It would seem, therefore, that the new (or attenuated) virulence of the varieties of bacteria thus produced is the better fixed the more gently the modifying influence acts upon them." These, then, are general principles concerning the attenuation by chemical agents of those bacteria which cause disease.

The next point to which I would briefly direct attention is an important one to the subject in hand, viz: the action of carbolic acid as an "attenuator" and "bactericide" upon a given bacillus. The anthrax bacillus, observes Pasteur, has been experimented upon more than any other—the one best studied. It is one comparatively easy of cultivation, has marked and distinctive characters, and is one of the most resistant of the bacillus tribe to inhibitory influences, and being a facultative parasite affords every facility for experimental observations; hence its behavior under the influence of carbolic acid is of very great importance, because this acid alone of all the more powerful germacides is one that can be given in large and repeated doses, and these can be continued for a lengthened period of time without producing any deleterious effects upon the system or its organs, unlike many of the mineral and organic germicides. In all the experiments made on the anthrax bacillus it should be borne in mind that its cultivation was made in the most nutritive fluids—i. e., those that were the most favorable for the growth, multiplication and development of its virulent powers—and that the varying proportions of the carbolic acid were added to these fluids. Therefore the bacillus had advantages conceded to it which were foreign to its habitat in the animal body, whilst conversely a certain but unknown percentage of disadvantage accrued to the germicidal powers of the carbolic acid, because when this special form of neutrient material is withdrawn the carbolic acid acts with far greater energy. There is a considerable difference, however, exercised on those anthrax bacilli which have spores and those free therefrom. Bacteria free from spores are completely and rapidly destroyed (not attenuated merely) by a very small proportion of carbolic acid, being killed in a few minutes when from 0.25 to 0.5 per cent. is added to the nutrient fluid, whilst from 4 to 5 per cent. is required to destroy its spores in from 24 to 48 hours. Gartner and Plagge, however, found that a three per cent. solution was required to destroy the non-spore-bearing anthrax bacillus, but that this was accomplished in eight seconds, and a one per cent. solution caused their rapid disinfection. All experimenters, however, agree that carbolic acid is a very efficient bactericide.

The next series of experimental results to which I would direct attention is the amount of carbolic acid necessary to attenuate this very resisting bacillus. Koch found that there was a distinct hindering of growth when 1-1250 of acid was added to the nutrient fluid, and that a complete cessation of growth occurred when the strength was in-

creased to 1-850. In these experiments it was found that the "action of the antiseptic was to diminish the virulence of the bacterium," and by continuing these experiments, by cultivations taken at lengthening intervals from the original flask containing the antiseptic, it was found that decreasing virulence was exhibited until an attenuated virus was produced capable of preserving animals from a fatal form of anthrax—i. e., a vaccine was the resultant. All these experiments were made outside the body, and under the most favorable circumstances for the growth and strength of the bacillus, but a great difference was observable when it was taken direct from the blood and then exposed to the action of the antiseptic. For instance, Koch observes that bacterial filaments taken from a virulent drop of blood in a case of anthrax soon perished when placed in a solution of carbolic acid of 1-600, though, if a similar drop was put into the nutrient broth and carbolic acid of the same strength was added, the bacilli lived and grew therein. Lord Lister, in his observations, has found that normal blood serum is by no means a favorable soil for bacterial growth, and he states that he has returned to the use of carbolic acid for disinfecting purposes. So much, then, for the definite and decisive experiments with carbolic acid on the anthrax bacillus, but in drawing comparative reasoning between its action on this bacterium and its supposed action on that which causes scarlet fever we at once pass from the domain of fact into the region of theory. Nevertheless, I think it may be taken for granted that the same general laws which govern the attenuation and ultimate destruction of the known bacteria, though outside the body, will also govern, in a measure, these effects in the unknown ones, especially if their usual zymotic effects in a certain measure correspond. Nevertheless, one naturally feels at a grave disadvantage from the fact that a scarlet fever bacterium has never been discovered. Still I think no one doubts in these days its absolute existence, and that it partakes naturally of a virulent character, often modified, however, by a variety of unexplained circumstances.

Bearing in mind the potent action of carbolic acid on anthrax bacilli outside the body, I was anxious to discover what amount would have to be given to a patient suffering from anthrax provided the effects were similar, with a view of ascertaining if there were any similarity of dose between what would be required in this disease and in that of scarlet fever, the dose being regulated to cause (1) a hindering of growth of the bacterium; (2) to cause a cessation of growth; and (3) to kill outright; for I concluded that if there were anything like unity in amount my success in my prophylactic treatment would be accounted for. I therefore had a table prepared, based, first, upon the weight of the body. I then allowed 1-13 for the average amount of blood contained therein, and calculated therefrom the approximate amount of carbolic acid that would have to be administered to produce the three separate effects described; and afterwards compared the doses with the one that I was in the habit of giving to my patients suffering from scarlet fever at varying ages.

TABLE I.—Table showing the Effect of Carbolic Acid on Anthrax Bacillus and Compared with the Amount of Carbolic Acid given in Scarlet Fever.

Average weight of body in children and adults.	Amount of blood, 1-13 of weight of body.	Amount of carbolic acid given in scarlet fever in 2¼ hours.	Number of grains to hinder growth in anthrax bacillus 1-1250.	Number of grains to destroy growth of anthrax bacillus 1-850.	Excess or deficiency. To hinder growth.	Excess or deficiency. To destroy growth.
st. lb.	lb.	Grains.				
3 3	3½	30	19½	28½	-|- 10½	-|- 1½
4 1	4½	36	25	36	-|- 11	0
7 4	7¾	60	43½	64	-|- 16½	— 4
8 0	8½	60	48	70	-|- 12	—10
9 13	10¾	60	60 1-5	88½	— 1-5	—28½
10 8	11½	60	64½	94¾	— 4½	—34¾

In the above table the amount required to kill the anthrax bacillus is omitted, being too large to administer to a patient; but it should be borne in mind that the bacillus was placed under the most favored conditions to establish robust growth,

that it had not the vital antagonistic condition of the blood to contend with, and hence a much larger quantity of carbolic acid was necessary to produce the above results. It will be perceived that to a child from three to five years of age I gave thirty grains of carbolic acid in twenty-four hours, which would be ten and a half grains more than is requisite to effect the hindering of growth of the anthrax bacillus, and one and a half more than sufficient to stop its growth. In children from eight to ten years, averaging 4st. 1 lb., thirty-six grains would be the amount given in the twenty-four hours, being eleven and a half more than necessary to effect the first purpose on the anthrax bacillus, and just sufficient for the second. Coming to those weighing 7st. 4 lb., the average weight of young people, the dose to scarlet fever patients would be increased to five grains, or sixty in the twenty-four hours; and here we have plus sixteen for the first purpose and minus only four and a half for the second. It is not till we come to 9st. 13 lb. that the amount given is barely sufficient to hinder growth, and twenty-eight and a half grains less than necessary to stop it altogether. In a person weighing 10 st. 8 lb.—the highest calculation made—there is only a deficiency of four and a half grains in the first column, but thirty-four and three-quarters in the second.

This table, of course, is but a basis upon which to ground certain broad inferences as to dose and effect; but I venture to think that the nearness of the dose in the first few years of childhood is of great value, demonstrating, as it does, that in the case of the anthrax bacillus its virulence would be seriously impaired by a dose smaller than that given in scarlet fever, and by analogical reasoning (on the ground that the bacillus of anthrax is of a very resisting nature) we might be justified in assuming that a very much smaller dose would be required to produce a far greater effect on the scarlet fever bacterium. There is, however, a very important point to be noted in the above table, and one apparently fatal to any conclusions we might wish to draw therefrom, and that is that in the case of the anthrax bacillus the requisite quantity of carbolic acid required to produce the various effects described in the experiments is added at once in its entirety with the nutrient material, whereas in scarlet fever it is divided into twelve parts, and these distributed over twenty-four hours. This apparently fatal objection is met from several points of view; first, I think there are good grounds for believing that the scarlet fever bacterium has much less resisting power than that of anthrax, and I am led to hold this opinion by observing the condition of the urine in a thoroughly carbolised patient. It must surely be conceded that there is some very powerful germicidal influence at work when the putrescent decomposition of urine—passed by a person suffering from this zymotic disease—is in many cases delayed for several days, and, secondly, prevented from assuming that highly offensive odor (so well known to us all), however long it is kept. We can hardly assert that there is a less antiseptic condition of the blood than of the urine, and if the blood is in this condition it must surely prove, in a great measure, inhibitory to bacterial growth and activity, remembering that "their power to produce disease may be influenced by a trivial alteration in the conditions of life." Then, though we know nothing concerning this bacterium, there is the ascertained fact that a person taking scarlet fever from a carbolised patient invariably has a milder attack, demonstrating that a feebler microorganism has come into existence; and as it is reasonable to assume that the anthrax bacillus is of a more virulent type than that of scarlet fever a much smaller amount would be required to attenuate it—i. e., diminish its virulent power. Then we have to remember that the vital condition of the blood (that vital condition which is termed its life and exists only during the life of the animal) has an inherent antagonism to bacterial growth, therefore with the aid of a germicide of even feebler power than that used in experiments outside the body, bacterial activity

would be still further hindered; and it has been proved by experiments that it takes one-third less of carbolic acid to destroy bacterial filaments taken direct from the blood than is required for those grown in nutrient broth, and so we at length get within a measurable distance of a much more moderate dose to effect the attenuated and germicidal powers required by my table than is required for the anthrax bacillus.

There is one other remaining point of importance to be noted. Cohn states that bacterial increase by the usual method of fission is so great that if only two were produced from one bacterium every hour their multiplication would amount to the almost incredible number of 4772 billions in three days. Further observation proves that this fission occurs every twenty minutes. Now each of these, whether more or less in number, would be produced in a fluid antagonistic to bacterial growth, and not under circumstances which would probably weaken the germicide ultimately, but in a fluid which would every two hours be subject to a renewal of the germicidal power. Hence this progeny would in time become "attenuated"—i, e., lose more or less the power of exciting disease, and if not completely attenuated would, nevertheless, have diminished virulent powers, and so approach that attenuated virulence called a "vaccine;" for, as Pasteur remarks, "each cultivation of the attenuated bacterium is a 'vaccine' for the more virulent—that is to say, capable of producing a more benign malady" Why, therefore, should we acknowledge the power of carbolic acid to attenuate and bring into the condition of a "vaccine" the progeny of the anthrax bacillus, and deny the same power in the case of the bacterium of scarlet fever?

Such a line of argument would appear to me to be somewhat untenable, contrary to scientific truth, and irrational. I think, therefore, I am fully justified in my belief that carbolic acid given in scarlet fever does produce a virus capable of exciting a more benign malady, and without having absolutely witnessed with the physical eye the attenuation of the scarlet fever bacterium by carbolic acid, I contend that the results I have obtained do by analogical reasoning justify my assumption that such is produced, and that the bacterium so attenuated is, in fact, a "vaccine" endowed with all the beneficial results that accrue to such attenuated cultivations. In full confidence of these results ensuing I assert that isolation in scarlet fever is both unnecessary and inexpedient, and have in consequence given up isolating my patients, and feel that I am fully justified by the results of this method in the following cases:

Case 1.—This case was certainly one of the most unfavorable for experiment. The father of the children suffered from curvature of the spine, and, therefore, a tuberculous tendency in the children would probably be inferred. The mother was of the sanguine type, highly nervous, and constitutionally delicate. All the children were of the blonde type —thin, pale, lymphatic, always requiring cod-liver oil. The two elder ones had taken scarlet fever some two years previously, when all of the others were carbolised and isolated, and escaped infection. Last year in a fresh locality one of them contracted scarlet fever from that hotbed of zymotic contagium, the board schools. I immediately gave the child carbolic acid, also the remaining two, and on the second day instructed the mother to bring the unaffected children into the sick room. The next day I learnt that they were so terrified that they could not be induced to enter. However, on urging the matter strongly they occupied the chamber, with the result that both took scarlet fever. The first day the pulse and temperature ran high, but on the second the attack suddenly collapsed, and the children were well somewhat more rapidly than usual. In this case had not my confidence in the value of carbolic acid been unassailable I should have had doubts about the wisdom of the procedure (when I found the initial stage so violent), but I was able to assure the mother, who was much frightened, that all would end favorably, and she subsequently acknowledged the wisdom of the proceeding.

Case 2.—This case was equally instructive. On a former occasion two out of a family of four contracted scarlet fever, the remaining two took carbolic acid, were isolated, and escaped. Last year, in a new house and locality, one of these contracted the disease. The child was duly carbolised and then the other, semi-carbolised, was admitted to the room, spending all day there, and this was continued until a prolonged desquamation was completed and the house disinfected, yet this fourth child was never attacked.

Case 3.—Scarlet fever broke out in a house where there was a family of five children, only one of whom had previously been attacked, some three years before. After carbolising the patient, and giving the uninfected ones carbolic acid, these were admitted to the room, and remained in it the greater part of the day. One child only, one year old, did not take the acid. All have remained free from attack. Singularly the one who had previously been infected did not take any medicine, and she was attacked with a slight diphtheritic sore throat.

Case 4.—I saw a patient suffering from scarlet fever in a family of six. After carbolising the patient, and giving the remaining five the acid, they were all allowed in the room on the second day, and I saw three of them on the bed together on one of my visits. Nevertheless, none of them took it. The house was disinfected, and no further outbreak has occurred. This was six months ago.

Case 5.—A child, aged eight years, took scarlet fever, and in thirty-six hours the urine showed that she was carbolised. The next day a child barely two years old was attacked, and one and a half grains of carbolic acid was given every two hours. Her urine was soon discolored. The remaining child, aged four years, took carbolic acid twice a day, played and slept in the room, and so far remains well. The mother had never had scarlet fever, and she also took the acid. There is no evidence of further infection.

So far, then, I have exposed fourteen persons to the direct contagium of scarlet fever and only two have been infected, which is at the rate of about 14 2-7 per cent; and if facts are worth anything for the purpose of demonstrating truths I think I have fully proved that if a patient is duly carbolised from the initial stage (and I make this a great point), and all non-infected persons take small doses of the acid, the risk of infection is very small indeed, and if the contagion does find entrance into the system the attack is invariably mild. Why, then, should we isolate the patient? I contend that it is rather our duty to do all that we can to spread the contraction of this attenuated virus to all the other children in the house, knowing that they will have a mild attack, be immune for the future, and the chance of a prolonged illness is nil, whilst that of the appearance of a sequela is about one to 1000. But this is by no means all. If they escape infection they may at a later period contract, perchance, a virulent attack with all the subsequent disastrous consequences. One such case is painfully present to my mind.

Case 6.—There was a family of two only—a boy and a girl. The boy took scarlet fever, was carbolised, and when desquamation was completed the house was disinfected. The girl was semi-carbolised and did not come into contact with her brother until then. Some time afterwards she contracted scarlet fever at school, had the usual vomiting and purging, which the parents attributed to a cold, and she was allowed to go out on a bleak day. The scarlet fever was suppressed and she died a few hours after I was called in.

This case has made me consider the question whether it is quite wise to semi-carbolise the unaffected children at all in a house where scarlet fever has made its appearance, but rather to allow them to enter freely the sick chamber, in the hope that the attenuated virus from the carbolised patient (without being further attenuated in the semi-carbolised) will be sufficient to induce a mild attack, for it is certain that when semi-carbolised the risk of receiving the contagion is very small indeed. On the other hand, we can never be quite certain what response a child's

system will make to a zymotic poison. We have all seen mild cases give rise to virulent ones in almost every zymotic. We see it also in vaccination. Two babies apparently alike in physical constitution may be vaccinated from the same vaccine pock, yet on the eighth day one will present a small, well-defined inflammatory area around the vaccine, whilst the other will exhibit a hard indurated inflammation from shoulder to elbow. The introduced zymotic vaccine has been benign in one case, but has produced a virulent type in the other. I have therefore concluded for the future to diminish the dose to the unaffected to about one grain, in the hope that this will allow of infection, and, if so, on the earliest appearance to at once give the full dose for scarlet fever. The only exception to this that I think of possibly adopting, after more experience, is that if the first outbreak shows a decidedly mild type to give no carbolic acid to the unaffected, for it shows that we have but a feeble micro-organism to deal with; whereas, if the first case shows anything like the virulent type then full semi-carbolism should be at once adopted.

The more, then, we isolate the uninfected the less chance is there of this attenuated bacterium taking up its abode in them and producing a more benign malady, and so protecting them for life. Hence isolation is quite unnecessary. And it is inexpedient. True, I have laid it down as a law not to be broken that the semi-carbolised children when mixing with the enfeebled patient shall not hold any communication with others foreign to the household, and that the open-air exercise necessary for them shall be taken in the garden. Where this is impossible, few gardens existing in overcrowded cities, I have directed those in charge of them to allow no inter-communication with others in the street, and I do this—though it is quite contrary to my theory and belief—because I do not think it right to force my opinions, however beneficial they may be, upon others. Nevertheless, I hold that the more freely the contagion from a carbolised scarlet fever patient is diffused the better it will be for the welfare of the community at large, and if this course is universally adopted scarlet fever will in time be no longer the dreaded zymotic it is at present. I am quite aware that I am making very startling statements, that deeply-rooted prejudice will both hinder and thwart the inauguration of this plan of treatment, that many will look upon it as absolutely Quixotic, and that it will take a long time to overcome both professional and public sentiment, so dreaded is the name of scarlet fever. Nevertheless, scientific therapeutic medicine must prevail in the end.—London Lancet.

STRONTIUM AND ITS SALTS.

By Alexander B. Briggs, M. D. Read before the Washington County (R. I.) Medical Society, July 8, 1897.

That the profession have in strontium salts, remedies of great therapeutic value is my firm belief, and my experience with them in practice during the past two years has very materially strengthened my faith in have been of such signal help to me in conversation with quite a number of my colleagues, to find that they are so seldom prescribed. That they have been of such signal ehlp to me in my professional work, and that so little has been said and written about them of late, is my only excuse for bringing the subject before you to-day.

There seems to be an impression that there is more or less danger in the use of the strontium salts from their toxic effects; this is wholly an error, as has been proved by the researches of such men as Professor Germain See, Dr. Constantin, Paul and Dujardin Beaumetz, who found

that in every instance where conflicting reports and toxic effects have been reported from their use, they were due to the presence of barium, which is found in the commercial product. When I have prescribed these remedies I have always used the pure salts (Paraf-Javal) or their solutions prepared by P. Chapoteaut, of Paris. At present I think strontium and its salts are unofficinal in the Pharmacopeia, but, nevertheless, the discovery of their therapeutical properties, and the good results in therapeia that have followed their administration, would warrant us in the belief that as they become better known and more often prescribed, they will become more highly appreciated.

not remove the pathological condi-

The salts that I have most frequently used are the bromide, iodide and lactate, and I will speak of them in the above order.

Bromide of strontium is a colorless, transparent salt, occurring in hexagonal crystals. It is somewhat delinquescent. The dose is from five grains to one drachm. It is not incompatible with the bromides of the alkalies, and it is soluble in both water and alcohol; it can be administered with all the alcoholic tinctures and most fluid extracts. Its indications for use are those of bromide of potassium, and while it is a perfect substitute for the potash salt, its prolonged use, even in large doses, does not seem to produce the untoward results so often noticed in the use of the former salt. The gastric disturbances, the cutaneous eruptions so often noticed in the use of the potash salt, are not seen when the strontium salt is used; again, the depressing and systemic agitation from the prolonged use of the potash, which all have encountered in practice, I have never seen from the strontium bromide.

In cases of epilepsy and other spasmodic neuroses, where the potash salt has been given for a long time, the patient thereby becoming insusceptible to its action, the strontium salt may be supstituted with safety and great advantage.

In many diseases of the stomach, the bromide salt will be found of especial benefit. In three obstinate cases of vomiting of pregnancy in which I have prescribed the drug during the past year, two received signal benefit, while in the third case it seemed to have no marked effect upon the vomiting, as the stomach would not retain the remedy; in this case it appeared to have some reflex effect upon the vomiting centre, when given in drachm doses per rectum every six hours, and it was so administered for several days in connection with other treatment.

In one case of hyperesthesia of the stomach that accompanied and followed ulceration for several weeks after I was satisfied the ulcer had healed, the neuroses promptly yielded to ten-grain doses of the drug, given one half hour before food, and there was no return of this most distressing symptom.

A patient suffering from exophthalmic goitre about a year ago, consulted a specialist in regard to a severe tinnitus aurium from which she suffered; bromide of potassium was prescribed in full doses. At first the patient seemed to get some relief from the remedy, and it was continued for several months; during this time the patient developed severe mental excitement with true delusions. Suspecting the remedy, it was discontinued, and in a few days the mental excitement subsided with a marked increase of the tinnitis. At this time strontium bromide was substituted, with full as good effect upon the symptom, and the patient has continued to take it during the past three months, with no return of the mental excitement; the delusions continue, however.

We are occasionally consulted by a class of patients that are plethoric; who complain of a general feeling of lassitude, frontal headache, constipation, a disposition to sleep all the time, various skin diseases; the urine is loaded with urates and frequently the heart's action is feeble, due to commencing fatty degeneration; these patients are sometimes fat, other times lean, but are always overfed. Any or all of these symptoms may exist, but will surely be relieved by the use of bromide of strontium administered before meals,

accompanied by a restricted diet.

In other cases of digestive disorders accompanied with acid fermentations, and the formation of the gases of decomposition with chronic diarrhea, the bromide has given me excellent results.

Strontium iodide occurs in colorless, transparent, hexagonal crystals, having a bitter, saline taste, freely soluble in water and alcohol. Like the bromide salt it is incompatible with solution of the sulphates and carbonates of soda, potash and lime, but is not incompatible with other iodides.

Iodide of strontium is an excellent tonic and alterative, and may with safety be prescribed in any case where the potash salt is indicated. In quite an extended use of the drug I have never known it to induce the gastric irritation or palpitation of the heart so common in the administration of iodide of potash in full doses. Its effects in catarrhal asthma, chronic bronchitis and cardio-pumonary affections have been most satisfactory. The drug is quickly eliminated by the kidneys, the strontium seeming to supplement the action of the iodine by its own peculiar action on the functions of nutrition.

In connection with the above I wish to report the following case:

Mr. B., aged about seventy, has had a catarrhal bronchitis, accompanied with asthma, for the past ten or fifteen years. At the time the strontium salt was prescribed he presented the following conditions: Catarrhal bronchitis of both lungs, with paroxysmal attacks of asthma, bad cough, with profuse expectoration; has been unable to lie in bed for over two years; body emaciated, appetite poor, urine scanty, no sugar or albumen present, marked artero-sclerosis edema of both feet and legs; pulse one hundred to one hundred and twenty per minute; mitral insufficiency, with dilatation of the heart; takes little food. For several weeks, from one to three pints of water had exuded from the feet and legs every twenty-four hours. The patient had been treated with iodide of potassium at various times, always with considerable relief, but he had been unable to continue the drug for any great length of time or in anything like the full dose, on account of the gastric irritation which it produced. We began the treatment with ten grains of strontium iodide every six hours; subsequently the dose was increased to twenty grains. Within one week all the symptoms had improved. The cardiac functions were better performed, the asthmatic attacks had subsided, and within one month the patient was able to move about the house. The remedy has been continued about every other month during the year, and I have seen the patient at work in his garden within the past week.

From my observations of the action of the iodide of strontium, I am satisfied that it is safe to prescribe it as a substitute for the potassium salt, and while the dose is about the same, the remedy can be pushed to a dose far beyond the limit of safety with the potassium salt, and that without fear of producing symptoms of intolerance.

Strontium lactate is a white granular powder, odorless, and has a slightly bitter, saline taste. Soluble in about four parts of water and freely soluble in alcohol; dose from five to sixty grains. Cases are reported where as much as one hundred and sixty grains have been administered with no untoward effects. The lactate has been often prescribed for Bright's disease, both in acute and chronic forms, with excellent results. Constantin Paul concludes that it is indicated in parenchymatous nephritis, the rheumatismal and gouty forms, but is not useful in interstitial nephritis. Dujardin-Beaumetz confirms these statements and says that when he had administered the remedy in cases of albuminuria, he has obtained uniformly a reduction in the quantity of albumen passed; that while it affects the most important symptoms favorably, it does tion. The remedy possesses the advantage over other drugs in the treatment of this disease, in that it promotes the appetite, aids digestion and assimilation, and can be administered for a long time continuously with no bad effects.

In two cases of albuminuria of pregnancy, in which I have made use of the lactate, the most gratifying results have followed. In one case where there was severe headache, insufficient urinary discharge, general dropsy and the symptoms of uremia present, and where diuretics, purgatives and diaphoretics had signally failed to give relief, the lactate was substituted in fifteen-grain doses every four hours, with a marked diminution of all the symptoms and with a decrease of more than one-half the amount of albumen excreted within forty-eight hours. The improvement in the general condition of the patients was noted from the beginning of the treatment.

In several cases of cystitis in the aged, due to hypertrophy of the prostate, the drug was given in connection with buchu with marked amelioration of the symptoms. Although the lactate does not seem to possess any diuretic properties, nevertheless its action upon the urinary organs seems to be salutary in the extreme.

Professor Germain See, in the treatment of affections of the stomach, considers the strontium salts as far superior to the alkaline carbonates.

Bartholow states that the phosphate of strontium appears to rather improve the appetite, promote the activity of assimilation and increase the body weight. The phosphate more especially is a reconstituent, an agent having the power to increase the nutritive energies. Recently the salicylate of strontium has been highly extolled in the treatment of rheumatism. I have, however, had no experience with the drug.

For a number of years I have been satisfied that many of the untoward symptoms that follow the use of the potash salts in full doses are due as much or more to the potash which they contain, as to the iodine or bromine. As we all know potassium is always a poison, even in small doses when often repeated. In bromide of potassium, potash constitutes one-third of the salt, and when given in large doses it cannot fail but exert its toxicological effects.

Well-known authorities have long ago demonstrated that there was far less danger in the use of the sodium than the potash salts.

If we have in the strontium salts remedies that can be used in full doses and for a long time without the unfortunate effects that sometimes follow the use of the potash salts, it behooves us to give our patients the benefit of the fact.

CLINICAL NOTES ON LACTO-SOMATOSE. (1)

BY DR. A. SCHMIDT, INSTRUCTOR IN THE UNIVERSITY OF BONN.

At a meeting of the Berlin Medical Society, June 2, 1897, Dr. G. Klemperer read a paper (2), the purport of which was that the greater number of artificial food-products, with few exceptions, were unnecessary, since they gave no better results than could be obtained more simply, and, above all, more cheaply, in the vast majority of cases, by a judicious selection of ordinary articles of diet. This view was justly contradicted in the discussion by various physicians. For there can be no doubt that in clinical practice these artificial foods can less be dispensed with than many medicaments or therapeutic measures, which not merely from a theoretical standpoint must be designated as superfluous. In the employment of artificial nutriments it is erroneous always to ask how many calories of animal heat, or how many grammes of readily assimilable albumin is thereby being furnished to the organism. As was emphasized by several speakers in the discussion, it is much more correct to re-

1. From the Medical Clinic of Bonn, Director Prof. Schultze.

2. Berl. Klin, Wochenschr. No. 26, 1897.

gard artificial nutriments as substitutes for ordinary foods in cases where these are not tolerated.

If from this point of view we seek for such substitutes, especially in chronic gastric and intestinal diseases, the first requisite demanded of a preparation is that its taste is agreeable and that it has no irritant action upon the digestive tract. It is in this particular, however, that all artificial foods are more or less unavailable, at least those intended as substitutes for albumin. Even somatose, doubtless one of the best preparations in the market, is not free from objection as regards the latter point; if taken in large doses it excites diarrhoea in some persons, particularly those having a sensative intestinal canal.

Somatose is prepared from meat. Recently the manufacturers (Farbenfabriken vorm. Friedr, Bayer & Co., of Elberfeld) have prepared from the caseine of milk, a somatose-preparation, which, aside from the advantages peculiar to milk albumin, is distinguished from meat somatose in that it is freer from salts. Its taste is slightly different from that of meat somatose, but not less agreeable. Milk somatose in large doses, however, also causes diarrhoea, and apparently more readily than meat somatose.

In order to adapt milk somatose for use in children and patients with weak and diseased digestive organs, it has been given an addition of a small quantity of tannin (5 per cent.), the tannic acid, however, not being simply mixed, but present in a chemical combination.

This combination of somatose with tannic acid possesses no styptic qualities. The slight content of tannin only serves to neutralize any irritant effect of lacto-somatose, and to convert it into a slightly astringent nutritive preparation which can be employed with benefit for children and persons with weakness of the digestive organs. This product is prepared after a process devised by Dr. Eichengrun, and a simple test will show that the tannin is in chemical combination. (Samatose is insoluble in alcohol; tannin is soluble. By boiling lacto-somatose with absolute alcohol no tannin is separated.)

Lacto-somatose was furnished to the Medical Clinic, of Bonn, in large quantities, and has been tested by me in a number of appropriate cases. The preparation is indistinguishable in appearance from meat-somatose. It dissolves readily and completely in hot water. Its solution is slightly darker than, but identical in taste with, simple lacto-somatose. Healthy persons are able to take it in considerable doses (about 50 gm. daily) for a long time without any concomitant effects upon the intestine. In some cases, after continued use, an aversion occurs if its mode of administration is not varied in a suitable manner. It may be given to advantage in one or two teaspoonful doses dissolved in hot water with addition of some meat extract.

The chief field of usefulness of this tannated somatose is in the various chronic diseases of the digestive tract, and above all, in the digestive disturbances present in enteroptosis and anemias, and resulting from atony of the muscular coat of the stomach. As is well known, these patients are extremely sensitive even as regards trivial errors of diet. Loss of appetite, a feeling of fulness, eructations, flatulence with gurgling, and colicky pains, constipation alternating with diarrhoea are regularly present, and the various remedies are apt to do more harm than good. After the use of lacto-somatose, three teaspoonfuls daily, I have observed exceptionally good results, the stools becoming regular, and the other disturbances being simultaneously relieved, as a rule. This regulation of the stools occurred particularly in cases having a tendency to diarrhoea, but also manifested itself in a remarkable way in cases of constipation if small doses were taken for a long time.

In cases of chronic enteritis of catarrhal nature, aside from improvement of the motor function of the intestine, a favorable influence upon the pathological secretion of mucus was noted. I would mention especially three cases of membranous enteritis, and one case of colica mucosa, in which after use of the

preparation the stools assumed a normal character within a short time, although the patients (at least the three first mentioned) had previously been treated for a considerable time, according to various methods without success.

Lacto-somatose has also proved an efficient astringent nutrient in cases of enteritis of tuberculous origin, if not in too far an advanced stage. It is here that a preparation is of value which, while unirritating in itself, will aid in the removal of conditions of irritation. In the milder cases of tuberculous diarrhoeas, this astringent effect is manifested in ordinary doses; in the more severe only when the dose is considerably increased, up to about three tablespoonfuls a day (about 40 gm.). There is nothing a priori to contraindicate the use of such doses. One of my patients took 100 gm. within two days, without the least inconvenience. In general practice, however, the indifferent taste of the preparation prevents its administration for a prolonged period. Hence it is advisable in obstinate diarrhoea to administer small quantities of the customary styptics besides this preparation.

According to my experience, lacto-somatose, owing to its small content in tannic acid, should not be employed as a styptic. In acute intestinal catarrhs particularly it is inefficacious, as well as in severe diarrhoeas of chronic character, especially those of nervous origin or occurring in the course of chronic nephritis. There is nothing to prevent its employment (in connection with styptic remedies) in such cases, where it is necessary to improve the general nutrition. Aside from the conditions already referred to the following require mention Typhoid fever and chronic wasting diseases in children attended with disturbances of the intestinal functions.

In typhoid fever, lacto-somatose has been administered systematically in fifteen cases. Aside from two cases in which it was vomited it was always well borne even in the acute stage, and in amounts of three tablespoons daily. Under its administration a moderate decrease in the diarrhoeal passages was observed in most cases; constipation occurred only once during convalescence and disappeared immediately after the dose had been reduced. It would of course be incorrect to ascribe this circumstance to the astringent effect of the preparation. At any rate, it appears to me noteworthy since it demonstrates the absence of any irritation from this preparation.

Among the exhausting diseases of children, lacto-somatose is especially adapted for the treatment of rachitis, which, as is well known, is frequently complicated by diarrhoea. Excellent results were especially noted when it was given conjointly with cod liver oil and phosphorous. As regards other diseases of children my observations are not yet sufficiently extensive, but if employed according to the proper indications successful results may be expected.

Formulating my opinions concerning the value of lacto-somatose, I would say that it has proved serviceable as a slightly astringent nutritive preparation in patients with weakened or diseased digestive organs. Its utility in typhoid fever also deserves attention. To what extent the derivation of the preparation from the casein of milk, aside from the contained tannin, is concerned in the favorable results must remain unanswered. It is readily conceivable that the original material must influence the digestibility of the preparation. In comparison with meat somatose lacto-somatose has a slighter content of salts.—Munchener Medicinische Wochenschrift, No. 47, '97.

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RUPTURE OF THE UTERUS.

Rare as the accidental rupturing of the uterus is, during the application of the natural forces of parturition at term, it is still more rare as an occurrence in natural abortion.

A case of this sort has recently occurred in the practice of one of my colleagues, who kindly gives the following notes on the case:

The patient, a healthy woman of about 30 years, the mother of three children, two of which are living, while at the third month of gestation aborted from natural causes. During the birth of the previous child the os uteri was torn on two sides, one slightly and the other clear through the internal os, and which undoubtedly caused the abortion now under discussion, as no means were utilized to induce it, the parents being desirous of children.

The fetus had been born before the doctor arrived, and his first manipulation was with the intent of removing the remaining membranes with his fingers, no instruments being at hand. To his surprise he found he could pass his fingers through a rent in the uterine walls into the abdominal cavity and come in contact with the intestines. At this time the patient seemed collapsed. Aid was at once summoned and the patient etherized, and by a laparotomy the rent in the uterus, which was found existing from the point of old laceration to the fundus, was stitched. The uterine tissue was considerably soft. She reacted well from the operation without abnormal temperature or other symptoms, except a rapid pulse. However, on the third day thereafter she gradually collapsed and died. No autopsy.

It would seem that pure muscular contraction was the cause of the rupture in this case, probably aided by some degenerative process, which so softened the tissues as to make them extremely friable. No contracted pelvis existed and, indeed, if it had it would not have been a factor of importance at the third month of gestation in a woman who had successfully borne children. This case would seem incredible had we not the full knowledge of it, and nowhere can we find, in the literature at our command, a parallel case.

F. S. P.

SEX DETERMINATION.

The medical journals and the lay press are at present in a furor over Shenck's "new" theory of determining the sex of the unborn. We quote the word new because in our humble opinion the theory is not only as old as the ancient greek philosophers, but exploded as well.

Shenck is a German embryologist, and has advanced, or rather revived, the theory that paternal superiority determines the male sex governed by good nutrition in the mother. He goes so far as to estimate the number of red blood cells of the father in excess of those of the mother, and attempts to influence the product of conception by bringing the number of blood corpuscles in the mother to the standard of the male for a boy and diminishes them for a girl.

While this theory, old as it is, is very pretty, and no doubt more or less philosophical, practically the opposite appears to be also true. It is patent to most physicians of observation that phthisical mothers oftener produce boys.

The writer, in looking over his own obstetric records, can determine but little difference as to sex in relation to the health and nutrition of the mother. Those notably of poor nutrition have, in the majority of cases, borne boys, but not without exceptions. However, the furor of Dr. Shenck's theory will probably have its fruits whatever they may be, for, as the matter has been given widespread publicity through the lay press of the country, we may expect during the latter part of the year an enormous increase in our infant population.

HOSPITAL MANAGEMENT.

In the issue of our valuable contemporary, the Medical Record, for January 22, 1898, there appears an able contribution from the trenchant pen of Dr. Arpod Gerster, which deals briefly with hospital management and other issues quite foreign to this subject.

The Doctor would turn our hospital system up-side-down, clear out the politicians and lay managers; turn adrift the free-service men, and concentrate the hospital management under the sole management of medical men. There would be a life tenure of office, and rotation in the in term service should end, as well as competitive examination as a test of fitness. Indeed, the Doctor in a sweeping denunciation, declares that "the prevailing system of medical hospital service is effete and must be reformed."

"Honor men and those who have passed written and other examinations with flying colors often turn out to be perfectly worthless in the service, and competitive examinations of candidates for house staffs no test of fitness," de declares.

This is strong and sweeping language, which deserves careful consideration. But we fear from its intense rancor that the writer must have recently had some friction with a despotic hospital superintendent and was worsted.

It is claimed that "the present beggarly system is inexcusable in hospitals, and that a well organized, decently paid medical service is a necessity."

The foundation stone of our hospital system is individual liberty or, as the English put it, "the liberty of the subject."

The father and founders of this republic revolted and repudiated the hateful, abhorrent monarchical system of Europe.

Democracy in its broad sense has been the watchword, and the profession of this country must be on the alert that a detested, hateful

aristocracy in medicine is not created, as was attempted by the late sham reform government in New York.

There can be no question that Dr. Gerster's views, though radical, are not without force, but they are so extremely exotic and impractical that they never will take root on this soil till the work of Washington and Lincoln is undone. Begging for a hospital is certainly no disgrace, as the Prince of Wales has been seeking alms for hospitals over the vast dominions of the British empire during the past year.

The only criticism that one can make with respect to the radical character of Professor Gerster's essay is that it was not quite sweeping enough, inasmuch as he well shows that the people and profession alike are being demoralized by too many hospitals, and that it probably would be better for all if they were turned into workshops and the sick and injured attended at the State's expense in their own homes.

VISITING NURSES.

It is a self-evident fact that there are limitations to trained nursing, and that there is a field which has not yet been fully covered by the methods in vogue.

A somewhat new departure in this line of work is designed to meet this want and thus far has given complete satisfaction. The scheme is well illustrated by a correspondent to the lay press, whose contribution is here given in part. Mrs. Sedgwick states:

"I refer to a form of house-to-house visiting by trained nurses in the homes of those who are able to pay a small sum for skilled care, but on account of its cost cannot afford the whole time and strength of a trained nurse.

"This form of trained nursing was first publicly recommended by Miss Diana C. Timben, assistant superintendent of the New York City Training School for Nurses, who says of the women thus engaged: 'They should in fact become visiting nurses, but visiting nurses not employed by a society paying them a salary to visit the poor, but visiting nurses employed by the doctor, to take care of patients able to pay the nurse for services rendered.'

"These nurses have a fixed schedule of prices for their service as follows: One to two hours night and morning, $1 a day, or 50 cents if only once a day; prepare patient for minor operation, $2 to $3; remain with patient all night, $2 to $3. Obstetrical cases—be present during labor, six hours or less, $3, and 25 cents additional for every two hours, up to $5. Care for patient and baby two hours daily for one week, $6 additional. Car fares charged out of town.

"Nor is it only the people of small means who may be benefited by such nurses. In a slight illness it might well happen that the skillful attentions of a trained nurse for two hours at morning and night would be all sufficient and far more agreeable than the constant residence of a nurse who had too little to do.

"Or the convenience would be great of being able to have one of these nurses to care for a patient during the necessary hours of rest and exercise of a regular nurse, or in a severe case to take the night work and thus avoid the employment of a regular second nurse."

This plan has for some time been in active operation in several of the larger cities in New York State, and has continued to receive the indorsement of the leading members of the medical profession.

There is no reason why it should not be succesfully carried into effect in cities of moderate size as well, where a considerable number are constantly in need of skilled nursing, but are, for pecuniary and other reasons, often unable to secure the continuous attendance of a trained nurse.

—New England Med. Monthly.

WAYSIDE NOTES.

BY ERNEST B. SANGREE, A. M., M. D.

I have lately had called to my attention down here in Nashville, a curious type of nervous trouble, which I respectfully recommend to the alienists and neurologists for explanation. I have none to offer. I was taken to see what is known as a "goosey" nigger. I do not enclose the word "nigger" above within quotation marks because the word is of too good and common standing here. The peculiarity of this darkey is that he cannot endure having anything pointed at him. If a finger or stick is pointed towards him he throws up one or both arms to defend himself, cries out in terror, "ducks" his head and runs away as fast as he can leg it. He is especially excited by being touched on the back. His comrades got him to dance a jig in a freight car and during its performance one of them punched him lightly in the back. Instantly he stopped, cried out, rushed from the car down the platform and through an open door into a mill. They tell me that no matter what the man is working at, a touch on the back will cause him instantly to stop and run away with every gesture and expression of fear. The sight of a mouse or a toad almost drives him into convulsions. At quite a distance off, and when the darkey was not looking, if one would suddenly ejaculate an aspirated 'pfwit," he will throw up his arms, duck and run wildly away just as when touched. I am told also that it is dangerous to stand near him when he is excited in one of these different ways, for occasionally his nervous manifestation takes the form of turning upon the person nearest, and striking him or else nearly choking him to death. I was told by a young man that once on a hunting party they had with them a boy of the "goosey" variety, and one night when a finger was suddenly pointed at him the boy instantly and involuntarily jumped into the camp fire and was badly burned.

I was told of another who while on a high stepladder had a finger pointed at him and instantly sprung off the ladder into a chandelier, smashing it all to pieces. The main characteristic then seems to be a nervousness manifesting itself in uncontrolable muscular movements. But what could be the mental condition of an otherwise apparently sane individual who is so violently affected by the pointing of a finger or a touch on the body?

RUSH MEDICAL COLLEGE AND THE UNIVERSITY OF CHICAGO.

It will be of interest to the faculties of the university to learn that at its meeting December 29 the university trustees, in response to a petition from the trustees of Rush Medical College, voted to enter into affiliation with that college. The date proposed for the consummation of the relationship is June 1, 1898, but it is specifically stipulated that the affiliation shall be dependent upon three conditions.

The first condition is that the board of trustees of Rush Medical College shall be reorganized. At the present time a great majority of the trustees are physicians, who are at the same time members of the faculty. This is acknowledged to be an unfortunate arrangement. The new trustees will be representative business men of the city of Chicago, who have no pecuniary interest in the income of the college.

The second condition provided that the requirements for admission to the college shall gradually be increased, until, in the autumn of 1902, only those who have completed the freshman and sophomore years of

regular college work shall be admitted. This proposition, which had already been adopted by the present trustees of Rush Medical College, is a most significant step in the history of medical education.

The third condition relates to the present debt of the college, which amounts to $71,000. It is provided that affiliation shall not take place until the debt has been paid.

It will be the aim of the new trustees, with such assistance as the university may furnish, to develop the work of the medical college along university lines. In the history of Rush Medical College it has always been found that with every increased requirement the number of students has increased. It is not expected, therefore, that the number of students will be diminished by the application of the new requirements for admission. It is confidently believed that college men from all parts of the country will be glad to enter an institution to which only college men are admitted.

The history of Rush Medical College during fifty years is one of the most interesting and splendid of any that has been enacted in the educational work of the West and Northwest. Its name to-day in medical circles is held in high honor. It is, of course, to be understood that affiliation does not mean organic union. The degrees will be the degrees of Rush Medical College, not those of the university.

The proposed affiliation, however, will give to the university a general supervision of the educational policy of the institution. The trustees of Rush Medical College will continue to be an entirely separate corporation. The trustees of the University of Chicago assume no financial responsibility in connection with Rush Medical College.

This affiliation is a part of the general policy of the university, in accordance with which already many institutions stand in close relations with the university. Whether Rush Medical College will ever become the medical college of the university time will show.

It is important, however, to note that even with this affiliation of Rush Medical College the university remains without a medical school of its own. The field is therefore open for some friend of humanity to devote one or two millions of dollars for the endowment of a great medical school, the income of which shall be devoted to special research, with which under any circumstances Rush Medical College would work in the closest co-operation. With the moral assistance thus gained the medical college will place itself in a position which, under ordinary circumstances, it could not otherwise have occupied. In thus lending its aid to the medical college the university performs in part the function for which it was established. In entering into this new relationship with a faculty composed of eighty members, the faculties of the university will join heartily in the wish that even more may be accomplished than it expected.

A CORRECTION.

Our attention has been called to a printer's error occurring on page 26, of January 15th issue. The first three words of Dr. Lewis' article should be read "Miseris succurre disco."

INQUIRY ON COCOA.

Dr. W. Golden Mortimer, of No. 504 West One Hundred and Forty-sixth street, New York city, is making interesting investigations on the physiological and therapeutical uses of erythroxylon coca, for which he asks the assistance of our readers. On application he will forward blanks for filling out the observations noted in using the drug.

CLINICAL SURGERY AND SURGICAL PATHOLOGY

In charge of T. H. MANLEY, M. D., New York

CAUSE OF METRORRHAGIA IN UTERINE FIBROIDS.

By N. Tailhefer.,

(Gazette De Gync. Jour. de Med., Dec.).

Observations on which the foregoing were made are from the service of M. Jeannet. They will not be given in detail, but only the principal features. We may often notice that when an intra-uterine fibroma movable and pediculated swings easily in the uterine cavity, there may be little discomfort and possibly no hemorrhage between the periods.

It may be well to remember that a close analogy subsists between uterine fibroma and hypertrophied prostate. In neither the simple augmentation of any organic structures produces any specially disagreeable consequences until infection sets in. In fibroma trouble comes with the menstrual epoch, intense congestion, germ invasion, endometritis and subsequent hemorrhage through the engorged surface capillaries.

Let it then be noted that the chief role in pathogenic changes is played by bacteria, since they are quite similar to what we find in the bladder, where we may note the crystalization and agglomeration of vast calculi without producing a trace of cystic inflammation until, after coitus, congestion of the prostate with infection follow.

But where do the germs come from in these cases of neoplastic endometritis?

Assuming the endometrium healthy, they develop from those which have remained dormant in the mucous membrane, as it is well known that many pathogenic microbes give no trouble until called into activity by some local blood or vascular change dependent on local or general conditions. If we will examine carefully in these cases we will observe that the arteries in the uterine walls have lost their elasticity and the vessels are reduced in calibre, though increased in number. The venous current is stagnant, and in time the degree of congestion may become extreme—in fact, a state physiologic in copulation in the male and in menstruation in the female.

The infective agents in these cases are various, either haematogenetic, specific or atmospheric. The two last are the most common. It should be remembered that the uterine cavity through the vagina is exposed to contamination from the air. Next, such infective elements, it should be remembered, are quite inert except with the production of congestion, the statis exudation and interstitial sclerosis. This vascular change soon makes its influence felt through a secondary affection involving the glandular secretions. Borrisow, in his late histologic work, deals with this complicating phase succeeding superficial endometritis by glandular and interstital participation, when the whole superficial layer may be thrown off and infection penetrate deeply into the underlying strata.

Metrorrhagia in uterine fibroids is dependent on two principal factors—first, the periodic congestion of menstruation, and, secondly, on infective processes called into activity by perverted vascular action.

(Note by the translator.)

It is said that of late years, and since the number of marriages has become greatly reduced in America, and small families or no family at all follow marital unions, uterine fibroid seizes on about 25 per cent. of the females. Their cause then is in great part physiologic, or dependent on perversion of natural functions. It is important to note this close affinity to adenoid prolifications and their occasional tendency

to degenerate into malignant changes. But their course on the whole is very erratic, as they sometimes advance and recede in volume; they are quite painless when of diminutive size. The sub-mucous may be always thoroughly and radically inoculated by the vagina. (T. H. M.)

LUXATION OF THE HIP, COMPLICATED BY FRACTURE OF THE FEMUR.

By M. Got. Schwartz, Hospital Cochin.

(Journal Des Practiciens 13 Dec.,97.)

Traumatic luxation of the hip is comparatively rare, for even in a great hospital service we may not see one in a year. But rarer yet are those attended with the complication of fracture. Seven years ago we saw a case of forward dislocation with a simultaneous fracture through the neck of the femur, and very recently another case of luxation on the iliac plate, with a fracture just below the great trochanter, came under our care. In the latter fracture had at first been overlooked. It is needless to say that in these cases accurate diagnosis may be very difficult. Our first case was seen in 1890, a woman, 73 years old, who fell on the sidewalk. She had cardiac disease with arterio sclerosis; had great dyspnoea and palpitation when seen.

On examination the left lower extremity was found at nearly right angles with the pelvis; posteriorly, there was an enormous sanguineous extravasation.

Over Scarpa's triangle there was marked tumefaction, where the movable head of the trochanter could be felt.

When the limb was brought into line with the opposite one crepitus was distinct. This made no change in the position of the femoral head trochanter mounted upward, and under the inguinal tumor, but the there was a shortening of four centimetres. Everything, in fact, pointed to an unmistakle fracture-dislocation.

Now, the question of treatment arose. What could be done with a debilitated old woman, already suffering from cardiac disease, in the way of using violent force? Twenty-six hours later chloroform was given, when the diagnosis was incontestably proven. By manipulation it was possible to roll the displaced femoral head into the cotyloid cavity. Now a plaster adjustment was employed, with weights making tension from below. Briefly, it may be said that after two months perfect union was secured. There was not more than one centimetre of shortening, and good use of the limb was secured. This subject was a fairly good one for results in this class of fracture, as she was of a thin, spare frame, which enabled us to precisely define the lesion and successfully treat it. Hamilton, in dealing with this subject, says that coxo-femoral fracture dislocation is very rare; some few are reported, but of these confirmatory evidence is not always provided. Heretofore the diagnosis of this lesion has not been regarded by any means easy, especially in fat subjects.

It is important, however, in doubtful cases, to employ every means in order to ascertain just what the nature of the disorganization is. In fractures within the capsule, under any circumstances diagnosis is often extremely difficult and quite impossible when there is impulsion of the fragments.

But now we have the skiagraph, which often proves an important supplementary aid in many doubtful cases.

The surgeon in dealing with coxo-femoral fracture dislocations will always first endeavor to secure reduction and, secondly, fix the fragments. (Jour. Des Practiciens, 15 Dec., '98.)

IS NOT THE MORTALITY FROM SURGICAL DISEASE LARGER THAN NECESSARY?

BY CHARLES M'BURNEY, M. D.

With anesthesia, asepsis, and greatly enlarged and improved operative surgery, the immediate danger to life from surgical interference has very greatly diminished, so that increased confidence has become established in the minds of

surgeons, physicians, and patients that few cases of surgical disease can reach such an advanced stage as entirely to preclude the possibility of relief by operation. And it is true that many conditions which formerly were necessarily fatal because they were considered to be beyond the reach of surgery are now safely operated upon and more or less completely relieved.

Each partial success in these desperate cases is a very proper source of pride to the surgeon, and each one stimulates him to still greater effort to save those who are nearly moribund. The more desperate the condition and the greater the risk, the more intense his interest, provided the possibility of success by care and skill exists. This feeling is to a certain extent shared by the physician, who now, much more frequently than in former times, calls upon the surgeon for aid, even in very desperate conditions. In this way every surgeon becomes familiar with cases for which he can do little or nothing, because the disease has already gone too far.

During the last few years I have been especially struck with the rapidity with which many cases of surgical disease advance from a condition that is entirely curable to one that is entirely incurable, or from one that can be completely and radically treated to one that can be only partially relieved. Probably almost all surgical cases have their time limit, before which, with proper treatment, complete recovery can be assured, and after which, at least with our present resources, no efforts can be entirely successful. Exactly what this time limit is in each individual case we do not accurately know, but that there is such a limitation which is well worth our constant thought and study I am firmly convinced. Take for instance a case of strangulated hernia. Is there not undoubtedly a moment up to which the possibility, after relief of the strangulation, of a return of circulation in the involved gut still exists, and a moment immediately following when such complete re-establishment of the blood current becomes impossible? Or, in a case of progressive septic peritonitis, is there not a sharp limit to the time within which the removal of the primary source of the sepsis and of its local products is capable of putting an end to the disease? And does not after this limit immediately begin a period when such a condition of general sepsis is established as entirely precludes the possibility of recovery? Or in a case of carcinoma of the breast is there not a brief period during which the disease is absolutely local and so open to radical cure, and immediately after this a period when invasion of lymphatic vessels renders operative work only palliative? As further instances I would enumerate carcinomata and sarcomata in many different parts of the body, cases of bowel obstruction due to whatever cause, all wound infections, and especially suppurative diseases involving or threatening to involve the peritoneum. All of these diseases, with certain rare exceptions, when old age or complications of various kinds render surgical treatment inadmissible, are at the proper time susceptible of complete and radical cure. In other words, there actually is a time limit before which death can be averted, and after which death is, immediately or remotely, inevitable.

The question that I would raise is: Do we to-day, with all our eagerness to improve the results of our surgical work, devote nearly enough attention to the limit of time when perfect surgery is possible?

Even leaving out the question of life and death, what shall we say in regard to the extension of disease from one tissue to another, calling at a late period for a much more extensive or mutilating operation than would have been required but a very short time before?

What an enormous difference between a case of strangulated hernia operated on at a time when a complete operation can be done and the hernia radically cured, and a case operated on at a late stage, when gangrene of the gut has occurred, calling for resection of the intestine, followed by intestinal anastomosis or a permanent artificial anus! Compare two cases of appendicitis, one

operated on in the period of quiescence after the first attack, and the other operated on during the second attack, when suppurative peritonitis renders a wide-open wound necessary and a large, bulging hernia naturally follows. Besides these more marked instances, many others could be given in which the transition from simplicity to complication is less clearly defined. To-day a diseased joint may be safely treated by resection; in a week amputation will be necessary to save life. In the case that I presented to-night there was a prolonged period when simple extirpation of the tonsil would have been sufficient. When the patient came under my care the disease had extended so far on to the lower jaw that it was necessary to sacrifice the whole of the ramus. The probability of inoperable recurrence of disease in this case is much greater than it would have been had the operation been done two or three months earlier.

WHEN TO CALL A SURGEON IN APPENDICITIS.

Dr. George W. Gay, of Boston (Gaillard's Med. Jour., Aug. 1897), presents the particular conditions and circumstances, intended especially for the family physician, in which a surgeon should be summoned in consultation in appendicitis:

1.—In cases of the fulminating variety of appendicitis, in which symptoms are always grave, and generally increasing in severity from hour to hour to an alarming degree, it is scarcely possible to obtain surgical aid too early in the disease. An operation may or may not be necessary, according to the condition of the patient, but from the very nature of things an experienced surgeon is best able to decide that point. No one would think of operating upon a person while in a state of profound collapse. Profound prostration, which differs from collapse in that the clammy sweats, cold extremities, flickering pulse, and sighing respiration are lacking, may call for an immediate operation. By speedily relieving the system of the pent-up septic materials the vital powers are thus enabled to rally, and to regain their normal condition.

2.—In the greater proportion of cases of appendicitis met with in ordinary practice the symptoms are moderate in severity at first, but steadily grow worse every 12 hours or so, with perhaps occasional remissions. These cases are often very deceptive. The patient does not seem to be very sick. With an occasional opiate, or perhaps without anything of the sort, he suffers little pain, and the attendants and friends are loath to believe that a serious, if not a dangerous, process is going on in the abdomen, until the vital powers are so exhausted that the patient's chances for recovery are very materially diminished. In these cases Dr. Gay strongly urges that the surgeon be called, not later than the third day. Very likely the symptoms will be only of moderate severity at that time; but the consultant can form a much more correct and satisfactory idea of the character of the disease before its manifestations have reached the point of danger. He will also be better prepared to attack the case at the proper time.

3.—A patient has a moderate attack of appendicitis. He is to all appearances improving, when without any definite reason the symptoms are aggravated. He has a relapse, and has to make another start in his convalescence, only to experience the same chain of events sooner or later to prevent his recovery. The patient, and oftentimes the physician, is inclined to attribute these relapses to over exertion, an error in diet, catching cold, etc. While these factors may occasionally act as exciting causes, yet the essential feature to be borne in mind is a damaged appendix. Every exacerbation means an extension of the morbid process, and leaves the patient a little weaker and a little worse off than he was before. The time may come when he fails to rally, and he then becomes an invalid from chronic appendicitis. Sound judgment is therefore required to decide the proper period for inter-

ference. Each case much be managed according to its conditions and peculiarities, It is better to err on the side of safety.

4.—Finally, we have the recurring cases of appendicitis to consider, which differ from the relapsing variety in the fact that patients are apparently well between the attacks.

TYPES OF FRACTURES AND DISLOCATIONS OF BONES LIABLE TO BE OVERLOOKED.

In dwelling upon the importance of accurate diagnosis in the above class of cases, Dr. T. H. Manley (Virg. Med. Semi-Monthly, June 25) offers the following conclusions:

1.—Fractures, difficult or impossible of demonstration, those fissured vertically, or those non-displaced through the cancellous tissues of the articular ends of long bones, occur, without doubt, more frequently than is commonly supposed.

2.—In injuries of the limbs attended with unusual or doubtful fracture, nothing can justify the application of violence to demonstrate its presence, as in no event are the principles of therapy altered in them.

3.—In this class of cases the patient should be given the benefit of the doubt until, at least, time elucidates it—caution only being observed that the circulation is unhampered and full muscular relaxation is effected.

4.—We should never fail, when possible, to utilize the Roentgen rays as a diagnostic aid, though their use in this direction is obviously limited.

5.—Exploratory incision should be ruled out, unless the fracture is of such description as to demand or justify a simultaneous osteo-plastic operation.

EXPERIMENTAL RESEARCH ON THE PATHOGENY OF OSTEOMYELITIS.

BY M. BINDA, OF MILAN.

The etiology of osteomyelitis has been clearly demonstrated by several interesting clinics and experimental works of several authors, among which may be cited those of Chassignae, Borket, Gamet, Vogt, Volkman, Klebs and Lucke. We know to-day that it is an infectious lesion which may have its origin in the bacillus of tuberculosis, the staphylococcus, the streptococcus, the bacillus of typhoid, the pneumococcus or coli-bacillus. In fact, all the staphylococci, which cause acute inflamation in any tissue, play a dominant role in what is known as infectious osteomyelitis.

Experimental research has indisputably demonstrated that in young animals the various types of osseous infection may be produced at will. Suppuration may involve the periosteum, the osseous elements or underlying substance.

How these suppurative foyers originally form is not well understood; it is believed, however, that the primary changes are dependent on embolism followed by a retrograde thrombosis; here the purulent mass being the result of the action of pathogenic bacteria.

In our experiments we have employed the young rabbit. Into the auricular-vein of each we injected an emulsion of a very virulent culture of stphylococcus. The localized infective process was not influenced by artificial means, as contusions or friction, but was left to physiologic and pathologic influences. Our researches have consisted in observing step by step the development of the process. The animal so infected we have killed at different intervals. In some, injections produced almost immediate death.

The bones were removed, decalcified, etc. In our first series we began by an analysis of the blood of the heart. This was opened with a cautery blade. We have made our inoculations in different parts of the marrow in order to make certain of the presence or absence of micro-organisms. After these inoculations we have always carefuly examined all the organs and have studied with special care the epiphyseal ends of the femur, which we know clinically are the most liable to osteomyelitis. Of these we have made very thin sections which we exposed to the action of a solution of—con, acid picri, 1000 acid nitric .50.

After six days decalcipiation was complete, when sections were first thoroughly washed and then placed in alcohol with a little carbonate of soda added to neutralize the acid. Later microscopic sections were made and stained. The author proceeds to give in detail the results of several experiments in detail. In no instance was there positive evidence of bacterial invasion in the cancellous tissues when the animal was killed in less than 24 hours after inoculation. In one, killed at end of 24 hours, the staphylococci were found in the blood and bone marrow, besides retrograde thromboses. In another, killed at same period, there was bacteria thromboses of the periosteal vessels at the end of the bones and in the coverings of the epypharyngeal cartilages.

Microscopically it might be noted in these cases that there was a marked turges cense of both heads of the femur, with subperiostial extravasation. Synovitis had already developed, and in the effused fluid staphylococci were found in abundance.

Microscopically in the same specimens cellular diffusion was obvious. In some instances the embry onic infiltrate packed the lacunar spaces in the cancellated tissue. Infiltration augmented as the epiphyses were approached. Quite invari bly here we found large groups of staphylococci.

In many, wherein the bone marrow, and overlaying parts showed free infection, yet the examination of the blood was negative.

In conclusion the author points out how emphatically these experiments demonstrate the important part the circulation plays in osteomyelitic processes. Under various circumstances this may be possible, as soon as one hour after injection, although the isolation of the germ is not yet demonstrable. It has been observed that the vascular changes always primarily commence in the cancel lous, periosteal and medullary tissues before seizing on the cartilage or perichondral parts, which are very resistant to phlogistic changes.

It wili be remembered that the epiphyses have expansions, or ampullae vascular dilatations. These abruptly end where the cartilaginous isthmus begins at a point beyond which microbes penetrate with difficulty, if at all.

In those instances in which very large squestra are thrown off, the initial lesson is thrombosis of the major vessels. Here the microbes first invade the endothelia, when their presence induces an infiltration of the intinmua, vascular stasis congulation and asphyxia of the osseous territories flushed by the disabled vessel.

(Archives de Medicine Experimentate et D'Anatomie Pathologicale, September, '97.)

Note by the translator.

The above valuable contribution of M. Binda throws some light on the pathology of a very interesting and comparatively common lesion; one of great importance to the surgeon; and suggests a novel line of therapy, at least in the early stages, viz: That osteomyelitis be produced through sanguinous changes by way of the circulation. why not follow it by an attenuated virus subcutaneously administered?

The claim that staphylococcus aureus is responsible for the greater number of cases of osteomyelitis we cannot entertain as conclusive based on laboratory experiments alone, for the reason that the rabbit is intensely susceptible to infection of a purulent microbe.

But in the human being free suppuration of any discription is rarely found anywhere without the presence of this microbe, mostly in the plasma which circulates in passages too fine for blood corpuscles; and yet osteomyelitis is no necessary sequelae of this type of infection; as in most cases of osteomyelitis we have a history of local violence. Under these circumstances how do we account for microbic action suppuration, necrosis, etc., when there has been no surface abrasion? Evidently not through the general circulation. The probability is that this ubiquitious microbe is quite inocuous in man, unless we have the indispensable locus-minoris-resistenciale, then it comes in as a consequence and not as a cause. T. H. M.

Current Medical Literature.

A NOTE ON TWO NEW CREOSOTE COMPOUNDS: CREOSOTE VALERIANATE AND GUAIACOL VALERIANATE.

BY FRANK WOODBURY, PHILADELPHIA, PA.

In these days of new remedies of ephemeral usefulness and evanescent reputation, it is refreshing to take up for brief consideration a drug with an established record of more than half a century. We recall the fact that while experimenting with tar from beechwood, Reichenbach, in 1832, first obtained a fluid substance, which, on account of its possessing pre-eminently the power of preventing putrefaction in organic substances, he termed "creosote" or "flesh preserver." That expert chemist also fully recognized the fact that the new chemical agent was not a simple, but a very complex, substance, being composed principally of hydrocarbons of the aromatic group. It also contains a variable quantity of water. According to a recent authority, Marasse, it contains phenol, cresol, phlorol, guaiacol and creosol; also methylcroessol, and the methylic ethers of guaiacol, phlorol, etc. By fractional distillation, Hofmann separated the dimethylic ethers of pyrogallol, of methyl pyrogallol, and of propyl-pyrogallol from that portion of the creosote which passes over at a temperature above 220 degrees. Hofmann discovered a new body, which he named cerulignol, which possesses powerful toxic properties, and which should be carefully removed from creosote that is to be used for medicinal purposes. Its presence may be detected by treating an alcoholic solution of creosote by a test solution of barium hydrate. If cerulignol is present the solution will turn blue or show a bluish tinge. Benzine may be substituted for alcohol, with the same result. The United States Pharmacopeia has adopted this as one of the tests indicating the suitableness of a specimen of creosote for medicinal use.

I have referred to the early studies of creosote by its discoverer, Reichenbach, in order to bring into marked prominence the fact that it was first obtained from tar from the beechwood, and the early experiments made upon this agent, not only chemically, but also physiologically and clinically, were made with this form of creosote, which is still considered the best for medical use, and which is now used almost exclusively in therapeutics. An analogous substance obtained from coal tar is simply a mixture of phenol and cresylol of variable composition, or, in other words, an impure carbolic acid. They differ chemically principally in the following characters: Creosote from wood tar, added to an equal quantity of glycerin, is precipitated upon the addition of water; added to collodion, it does not coagulate it; and when treated with nitric acid and heat, by Clark's method, yields oxalic acid. The so-called creosote from coal tar is not precipitated by water from its gelatin solution; it does coagulate collodion, and yields picric acid when treated with nitric acid. There are corresponding and equally well-marked differences between the two compounds in their physiological action, the most important being the comparative innocuousness of pure wood tar creosote, which can be taken in large doses, not only without toxic symptoms, but with decided therapeutic results.

It has unfortunately occurred that for many years the coal-tar compound was frequently dispensed for creosote, and the latter consequently fell into disrepute for a time on account of the accidents and untoward results from its use. Creosote, according to Dr. H. C. Wood, also, is liable to be adulterated with eupion.

In the last edition of the United States Dispensatory, by Professors Wood, Remington and Sadtler, the statement is made that "commercial creosote almost always contains carbolic and cresylic acids from coal tar; and indeed, much of what is sold for creosote is nothing more than impure carbolic acid." I cannot, however, agree with these distinguished authorities in the statement contained in the sentence immediately following the above, which says, referring to carbolic acid, that "this acid strongly resembles creosote, and this resemblance probably extends also to their therapeutical effects, so that the substitution is less to be regretted than might otherwise be the case." This I regard as a most misleading and dangerous teaching. A patient may take as much as six hundred drops of creosote, as in Dr. Freudenthal's case (Medical Record, 1892), and recover practically without the use of any antidote; but would this case have resulted so favorably had the same quantity of carbolic acid been swallowed instead of creosote?

The principal constituent of creosote is guaiacol, the methyl ether of pyrocatechin, which is said to be present in the proportion of sixty to eighty per cent. in the best specimens. Guaiacol, in a pure state, is crystalline, but as commonly met with is an oily-looking fluid with a peculiar pungent, smoky odor. It can be obtained, however, in an absolutely pure condition from a commercial sample, by cooling with a mixture of ice and salt, and then separating the crystals which have formed, as stated by S. Winghoffer (Pharmaceutische Zeitung, Berlin, 1894).

On account of the liability to adulteration in commercial guaiacol and its variable composition, various compounds have been introduced into the practice of medicine as substitutes for creosote and guaiacol. Among the more prominent of these are the carbonate of guaiacol; guaiacol salol; benzoyl guaiacol, or benzosol; cinnamyl guaiacol, or stracol; guaiacol phosphite; guaiacol biniodide; and most recently the guaiacol valerianate, or geosot. These various compounds are administered with the view of their undergoing decomposition in the intestinal tract and yielding guaiacol at the point where it can be most readily absorbed into the bloodvessels. In this way the administration of chemically pure guaiacol is accomplished more surely than by any other method. Moreover, these compounds, generally speaking, are more agreeable to the palate than the guaiacol itself.

Chemistry.—The following is Dr. Wendt's process for the manufacture of the valerianic-acid esters of creosote (eosot) and guaiacol (geosot).

The description of the process of manufacture and of the physical and chemical properties of these esters can properly be confined for the purpose in question to the esters of the two most important constituents of the wood-tar creosote, the guaiacol and creosol.

To fifteen parts of creosol and twenty parts of valerianic acid seven parts of oxychloride of phosphorus are to be added. The mixture is then gently heated and boiled for the beginning in the water bath, and later on the open flame, until the development of hydrochloric acid has ceased. Afterward the mixture is washed with a three per cent. solution of caustic soda, well shaken with benzol, separated from the solvent medium and from water.

The ester represents an indifferent, slightly yellow, oily liquid, and boils in the vacuum (two to three millimetres pressure) between 117 and 121 degrees C. The creosol used in the process is distilled in vacuum (two to three millimetres pressure) for the greater part between 81 and 85 degrees C.

The ester is easily soluble in alcohol, ether and benzole, and has an aromatic odor.

The process for the manufacture of guaiacol valerianate (geosot) is slightly different.

Five parts of guaiacol are mixed with seven parts and a half of chloride of valeryl and gently heated until boiling occurs, at first over the water bath and later on the open flame, and until the development of

hydrochloric acid ceases. Then the mixture is washed with a cold three per cent. solution of caustic soda, diluted with benzol, separated from the solvent medium and exsiccated.

The physical and chemical properties of this ester are practically the same as those of the analogous creosol ester. The boiling point of both of them under the regular atmospheric pressure is stated to be about 260 degrees C. Other compounds of the esters resulting from the process of esterification of commercial creosote with valerianic acid begin to distil at a temperature of about 240 degrees C.

Physiological Action.—The valerianic acid esters of the wood-tar creosote, especially of the most important constituents—that is, of guaiacol and creosol—are distinguished by their special property of being easily absorbed by the human system, and particularly by the fact that the heart and nerve tonic property of the valerianic acid is entirely preserved in these preparations.

Locally, guaiacol acts like solutions of carbolic acid to produce limited surface anesthesia. Dr. Newcomb, of New York, at the recent meeting of the American Laryngological Association, recommended a five per cent. solution in olive oil as a substitute for cocaine for nasal operations. I have myself used the guaiacol valerianate for this purpose, both in full strength and diluted, and found it to possess, after a slight sensation of heat, decided anesthetic effects, which are slower in appearing than after the application of cocaine, and which are not followed by secondary hyperemia. The antiseptic power of guaiacol is also of great value in throat and nose operations. We know of the frequency of the presence of virulent bacilli in the nasal chambers of apparently healthy individuals, and the routine use of detergent remedies, followed by a decided antiseptic, such as guaiacol in oily solution, or the more agreeable valerianate of guaiacol, is now almost necessary in the conduct of our hospital and private work. I should have stated that the valerianate has a strong odor of valerian, which almost masks the guaiacol, and produces a combination the odor of which is suggestive of walnuts. Guaiacol valerianate is a local anesthetic to the skin when applied in full strength.

The temperature-reducing power of guaiacol, discovered by Sciolla, in 1894, is one of the most remarkable observations in the whole realm of pharmacology. This is not likely to occur in persons of good health with a normal temperature, but it is very marked in conditions of pyrexia. Caporali has found that the external applications of guaiacol not only relieve pain and reduce abnormal temperature, but also increase the utilization of albuminoids by the organism and the absorption of fat and diminish oxidation.

Administered internally, guaiacol and creosote both exert a powerful antiseptic action upon the contents of the alimentary canal. The temperature reduction appears to be due to a special action of guaiacol upon the peripheral end organs of the nerves in the skin and mucous membranes. Upon the heart and bloodvessels there are no obvious effects from moderate doses of creosote or guaiacol. In larger doses it acts as a cardiac depressant, producing diaphoresis from relaxation of the bloodvessels, also giddiness and a tendency to fainting or collapse, convulsions, or coma, but these disagreeable effects are more likely to occur from commercial creosote or guaiacol than from a chemically pure article. In escaping from the blood by the bronchial mucous membrane and urinary organs, guaiacol exerts a local stimulant and antiseptic action.

From this very brief review of the physiological action of guaiacol I turn to the therapeutic use.

As my time is limited, I will confine my remarks to the guaiacol valerianate and creosote valerianate (for brevity, denominated eosot and geosot) which were recently introduced by Dr. Gustav Wendt, of Berlin, and which I have used, to some extent, for the past three months in private and dispensary practice. For the same reason I will omit notes of cases, and simply summarize some of the results of the use of

these agents. Both of them are liquid and have characteristic odors, the guaiacol valerianate being more agreeable to patients than the creosote compound.

In painful affections of the skin, attended by hyperemia, such as inflamed acne, or abscess in the external auditory canal, pin boils, etc., applications of pure guaiacol valerianate (geosot) relieved pain and checked further pus formation. In chilblains this agent promptly relieved the annoying symptoms. Small compresses wet with guaiacol and applied over the painful spots of Vallein afford almost immediate relief in neuralgia.

In an acute erythema of the face, apparently erysipelatous, but possibly the result of rhus poisoning, a single application of this agent for ten minutes, followed by applications of zinc ointment containing creosote (one drachm to the ounce), afforded immediate relief and prompt disappearance of the inflammation. In the cases of children, however, or where larger areas are involved, the antithermic effect should be borne in mind, and not more than twenty-five to thirty drops applied at one time. I have already alluded to the use of guaiacol valerianate in the treatment of affections of the nose. In acute rhinitis it should be diluted with three or more parts of oil of sweet almonds or liquid albolene, and in this form it acts as a protective as well as an analgetic and antiseptic application. In chronic rhinitis, especially the purulent form, as well as in some varieties of atrophic rhinitis, it is used in full strength with advantage, as many of these cases are kept up by the presence of virulent micro-organisms, the action of which is inhibited by the guaiacol. In ulcerated conditions, even of supposed tuberculous origin, a few applications of pure guaiacol or creosote valerianate materially promote the healing process, at the same time relieving pain. This observation also applies to the larynx. I have not yet employed it in lupus, but it might be of service here for its local anesthetic effects, prior to scraping and the application of lactic acid and the subsequent use of a twenty per cent. guaiacol spray, as recommended by Dr. P. Watson Williams. In tuberculosis of the air passages, external applications of pure guaiacol have been recommended by Dr. J. Solis-Cohen and others, and for this purpose the valerianate (geosot) would have especial advantage. Internally, guaiacol valerianate is given either in milk or dilute alcohol, or, better, in the form of capsules. It checks bronchorrhea and reduces the number of tubercle bacilli in the sputum, at the same time that it tends to prevent reinfection from the intestinal tract. It is well borne in moderate doses, ten to thirty minims daily, or one to three capsules, each containing two grains, or three minims and a third, three times a day.

In the treatment of gastric catarrh, chronic gastritis, with gastrectasia, and other conditions associated with or producing fermentation of the contents of the stomach, I have used creosote valerianate (eosot) in preference to the guaiacol valerianate (geosot), as I believe it to exert stronger antiseptic action. It also overcomes nausea, and in connection with lavage, favors return to a healthy condition of the mucous membrane and the re-establishment of appetite and normal digestion.

Fifty years ago Dr. Fahnestock used pure creosote as an application to erysipelas with remarkable success. I have already referred to the use of guaiacol valerianate as a local application for erythema, and would suggest its use as a topical agent in erysipelas and also in small-pox.

In cases of pulmonary phthisis this remedy has been well borne, but I have had it too brief a time under observation to report decided results. Very favorable results, however, have been observed by Dr. Rieck, of Bassum, Germany, who reports increase of appetite and power of digestion, and of physical strength under its use. In cases of the initial stage of tuberculosis of the lungs this improvement was quite marked, with a decided diminution of the cough; the expectoration not only became more free, but it also decreased steadily in quantity. The night-sweats disappeared.

This report was based upon the study of twenty-three cases (sixteen of catarrh of the apices and seven of developed tuberculosis) which were markedly benefited.

I have found the guaiacol valerianate (geosot) of decided value in the treatment of the so-called catarrhal state which is sometimes considered as the pre-tuberculous stage of phthisis pulmonalis. It seems especially suited, when properly diluted with some bland oil, for intratracheal injection in cases of advanced phthisis with or without ulceration in the larynx or cavity in the lung.

Inhalation of creosote in combination with oil of peppermint is alleged by Dr. Carasso to cause a disappearance of the tubercle bacilli from the sputum, and he reports good results, clincally, after nearly ten years' experience with it. Certainly this form of aerial medication is worthy of extended trial, and guaiacol valerianate would be preferable to creosote for this purpose.

I am of the opinion that in guaiacol we have the best remedy known at present to counteract the pernicious activity of the tubercle bacillus, and I may repeat the words of Dr. Jacobi: "No one treatment of all forms of tuberculosis ever satisfied me to the same degree as has that of guaiacol." When introduced into the stomach the guaiacol valerianate is decomposed and the effects of pure guaiacol, with the sedative action of valerianic acid, are obtained simultaneously, which may be expected to have a favorable effect upon the nervous manifestations of the disease, reducing cough and restlessness. In pneumonia, Malderesco used applications of guaiacol to the thorax, posteriorly, over the affected area of the lung, with reduction of temperature and a diminished mortality.

I have thought that these few notes on a recent form of an old remedy might be of interest to the members of the section, and I beg to present, for their inspection, samples of the guaiacol valerianate (geosot) and creosote valerianate (eosot), the valerianic-acid esters of guaiacol and of creosote respectively. For further and more detailed information I may refer those interested to reports from the medical clinic of the Royal Charity Hospital, of Berlin, by Dr. Grawitz, and of Dr. Rieck, already referred to, which have appeared in the Deutsche Medizinal-Zeitung and the Therapeutische Monatshefte for 1896.

The best method for their administration is in coated Gelatine Capsules, which are entirely free from taste and smell, and are, therefore, highly recommended by the first clinical investigators of these new remedies in all cases, where no special stress is laid upon the cheapest way of medication. These capsules are of the only size of 0.2 gm., equal to about 3 min.

In the liquid form it is advisable, first to dissolve one part of the Valerianates in from 2 to 4 parts of 95 per cent. alcohol and to give this solution in sufficient milk to cover the taste and make the remedy palatable.

The following formula may be taken as an example for the alcoholic solution:

R. Eosot or Geosot, 20 ccm.
Alcohol, 95 per cent, 80 ccm.
Ol menth. pip., 0.3 ccm.

M. (Each tablespoonful contains about 12 min. of Eosot or Geosot.)

Mix dr. 1 to dr. 3 with plenty of milk and give this dose in three equal parts pro die.

The Average Dose of Eosot and Geosot is:

In the beginning of the treatment 0.2 gm. (3 1-2 min.), later on 0.4 gm. (6 1-2 min.) to 0.6 (10 min.) three times a day.

If given in capsules of 0.2 gm. contents, begin with one capsule and increase the dose to 2 and 3 capsules three times a day.

—New York Medical Journal.

For family or medicinal use there is none better than the Jesse Moore whisky, either Bourbon or Rye. In cases or bulk. Jesse Moore, Hunt Co., Louisville, Ky., or L. Heineman, agent, Jamestown, N. Y.

CONSUMPTION.

Mary Flaherty; Irish; age 34; first seen October 4, 1897: Case of tubercular phthisis, by microscopical and physical examination. Already of two years' progress under the various treatments. Previous weight 120 1-2 pounds; present, 94 pounds. The onset had been insidious, began with dyspepsia, irritable heart, light dry hacking cough, which was referred to the stomach; the diagnosis of her physician being anaemia with atonic dyspepsia. Two months later the cough had increased in severity, with scanty, glairy expectoration, loss of weight, impaired muscular strength, pallor, and one rather severe hemorrhage; also sharp pain below the clavicles. Such had been the condition of the patient up to the time of admission at Sound View; when my careful examination revealed softening in progress, cough in severity, with free expectoration, blood-streaked, and tubercle bacilli visible under the microscope. There was dyspnea on increased exertion, morning chills and evening fever, night sweats, diarrhoea, much emaciation and weakness. Yet the patient, as is usual under these conditions, was very hopeful. There was considerable edema of feet, indicating disturbed circulation. Inspection showed depressions in supra-clavicular and infra-clavicular regions; palpation, vocal fremitus much increased; percussion, dullness over right apex and upper lobe, with circumscribed spots of amphoric sound; auscultation, vesiculo-bronchial breathing, associated with subcrepitant and moist rales. The prognosis, it is unnecessary to add, was decidedly unfavorable.

The patient was put to bed after having been thoroughly bathed, and attention was turned to her secretions. The stomach was gently washed out with Thiersch solution No. 2. Was put on a prescription of one drop pure beechwood creosote, two drops tincture iodine and six drops oil of cinnamon, in iced water, every three hours; also one-eighth grain biniodide of mercury rubbed up with bicarbonate of soda, every three hours. The stomach being in a sensitive and delicate condition, I commenced bovinine in small doses of thirty drops in iced grape juice, hourly, for the first three days; then increasing it to a teaspoonful every two hours and, after ten days more, to a tablespoonful every three hours. By the 28th the patient's stomach was so much strengthened that she was able to retain without inconvenience a wineglassful every four hours. The biniodide of mercury and bicarbonate of soda was then stopped, but the other prescription was continued, and on November 10 the creosote was increased to three drops; on the 26th to five minims, now in capsules; on December 16 diminished to three minims.

At the latter date the patient was giving every evidence of restored health; the cough was reduced to a mere occasional clearing of the throat; scarcely any expectoration, and that only on rising in the morning. The microscope revealed not the slightest trace of tubercle bacilli in sputum. The morning chilliness, evening fever and night sweats were no more. Her appetite, digestion and sleep were normal. Her weight was 119 3-4 pounds. There remained some dullness over the right apex, but auscultation showed complete encystment of the tubercle. She was discharged December 27, with every indication of cure confirmed. Will report for examination and advice twice a week; so that there will be no difficulty in watching and reporting the sequel of the case.

CATARRHAL PNEUMONIA.

John Hayes, Bridgeport, Conn.; American; age 32; first seen November 3, 1897. A well-defined case of catarrhal pneumonia. Was put on bovinine diet exclusively, thirty drops in old port wine, hourly, for five days; then a teaspoonful every two hours to the 23d; then a tablespoonful every three hours. After the 12th he was allowed in addition to the bovinine a light general diet. Medication consisted in three drops tinct. aconite every three hours; 1-100th grain of glonoine, and 1-30th grain nitrate of strychnine, every four hours, and a tablespoonful of bronchine every three hours.

Although the case had been well

defined in first stage, and just verging into the stage of red hepatization, it was, nevertheless, cut short by this course of treatment, and the patient was put on the road to recovery, and under continuance of the same attained it and was discharged cured December 14. His strength had been better sustained than any other case in my experience, and there was less than usual of dyspnea and depression.

NOTES ON THE TREATMENT OF SCIATICA AND RHEUMATISM.

BY ALLISON MAXWELL, M. D.

Professor of Principles and Practice of Medicine, Central College of Physicians and Surgeons, of Indiana.

Case 1.—Mr. M. A., age 49, has been suffering rather severely with sciatica. He was given salophen 15 grains four times a day. The leg and hip were also treated three times with static electricity. After three days the pain and soreness had disappeared and the patient walked without limping, and up to this time, three weeks after, he has been entirely well.

Case 2.—Miss M. M., aet 52, has been suffering with acute rheumatism of the ankles and knees for four days. She has previously had subacute attacks. She could not take any of the salicylates because of the nausea which they produced. I gave her salophen, 15 grains four times a day; within a few days she was able to be out of bed, and in ten days left the city to visit friends in a distant city. She was delighted to have found a remedy for rheumatism that did not nauseate her.

GUDE'S PEPTO-MANGAN.

By J. R. CLAUSEN, A. M., M. D.

While opinions may differ as to its significance, it is a well-known fact that manganese is always found in the hemoglobin of the red blood corpuscle, and close observers attribute to it an oscygenating function that quantitatively is more active than iron. Certain it is that it gives off oxygen more readily than iron; hence its introduction into the body must increase assimilation.

But while the profession have theoretically long recognized the value of manganese in anemia, it has not been extensively used on account of the difficulty attending its absorption. The various combinations of iron and manganese heretofore introduced and used have almost invariably produced digestive disturbances after a short time. When Gude's pepto-mangan was first brought to my attention as a solution of manganese and iron that could be readily assimilated by the most delicate stomach I must admit that I was skeptical, since other combinations of iron and manganese which I had employed had yielded far from satisfactory results. It required but a few weeks of experiment, however, to convince me that all the claims set forth for Dr. Gude's preparation were well grounded.

My first case was that of a patient well advanced in years, whose system was thoroughly debilitated and whose condition was decidedly anemic. I tried the remedies usually prescribed in such cases, but without satisfactory results, and finally decided to try pepto-mangan alone. In the beginning I tried small doses, knowing from experience that she had an extremely delicate stomach. Somewhat to my surprise the symptoms of digestive disturbance, which I fully expected, did not appear, and larger doses were well borne by the digestive organs. Inside of two weeks she showed marked improvement; her appetite returned, her bowels resumed their normal functions and there was a gradual amelioration of all the distressing symptoms that before had made her look and feel miserable. In less than two months she pronounced herself "as well as she ever was," and to-day laughingly declares herself "ten years younger" than before she placed herself under treatment. My next case was that of a youth aged 15 who had the most pronounced anemia following on a severe attack of scarlet fever with other complications. From the very first pepto-mangan was perfectly assimilated, and in a little over two

months he was able to resume his studies with new life and vigor.

Since then I have used pepto-mangan in many cases of anemia and chlorosis, and always with the same marked sucess.

I earnestly commend it to the profession, and especially to such of my professional brethren who have used other combinations of iron and manganese with disappointing results.

DRUGS FROM PLANTS.

What are your favorite drugs derived from plants? With most physicians (1) aconite takes the lead, followed by (2) digitalis, (3) nox vomica, (4) opium, (5) belladonna, (6) cinchona, (7) veratrum viride, (8) hyoscyamus, (9) gelseminum, (10) cimicifuga, (11) colchicum, (12) podophyllum, (13) hydrastis, (14) physostigma, (15) phytolacca, (16) pilocarpus. Many others are used, but probably more practice is done with these few than with all other plant drugs together. You have been using them in some of the crude forms—solid extracts, fluid extracts or tinctures. These are inconvenient of administration and slow in action. They can all be more conveniently and accurately administered, and in a form in which their effects will be more prompt, certain and safe, by employing their active principles. For the above-named drugs the active principles would be respectively, (1) aconitine, (2) digitalin, (3) (a) strychnine, (b) brucine; (4) (a) morphine, (b) codeine, (c) apomorphine; (5) atropine, (6) quinine, (7) veratrine, (8) hyoscyamine, (9) gelsemine, (10) macrotin, (11) colchicine, (12) podophyllin, (13) hydrastin, (14) physostigmine, (15) phytolaccin, (16) pilocarpine. There is no elaborate system needed. Just select from the list the drugs you have been accustomed to using, and commence giving them for the usual indications. Give in small doses, and repeat frequently until the desired effect has been produced. For further information of a practical character on this subject see the adv. of a fine pocket case of forty-eight remedies (a complete pocket pharmacy) by the Philadelphia Granule Company, 1127 Walnut street, Philadelphia, in this issue. Many physicians attribute their greatly increased success in practice to their adoption of these neat, attractive, prompt and powerful remedies.

THE VIRGINIA HOT SPRINGS AN IDEAL HEALTH RESORT.

Among the mineral springs resorts of the United States which will not only serve as a model for other resorts in this country, but is equal in every respect to such celebrated European resorts as Carlsbad and Aix la Chapelle, is the Virginia Hot Springs, located in the Hot Springs Valley, at an elevation of 2500 feet, on the Chesapeake & Ohio Railway. All the natural conditions unite here to form an ideal retreat for invalids. The surrounding mountains afford protection from violent atmospheric changes and insure a delightful temperature, free from extremes in summer and safe in winter. The scenery is bold and picturesque, and outdoor exercise is a feature of the place. The magnificent bathing establishment is provided with every modern appointment, and every bath is given with natural hot water.

In addition to the Hot Springs there are magnesia, sulphur, soda-lithia and alum springs in the grounds, and the very valuable and celebrated waters of the Healing Springs, which are located but a short distance from Hot Springs, are in constant use at this resort.

A strictly modern hotel, "The Homestead,' was completed in the spring of '96, and few hotels are better fitted to supply every want and gratify every taste.

Being located about midway between New York and Cincinnati, the Springs are very convenient of access, the through service of the Chesapeake & Ohio being unsurpassed by any line of railway in the United States.

Full information may be obtained by addressing Mr. H. W. Fuller, G. P. A., C. & O. Ry., Washington, D. C., or Mr. Fred Sterry, manager, Hot Springs, Bath County, Va.